



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------------|-----------------------------|
| 10/560,131 | 05/12/2006 | Hiroyuki Ochiai | 283232US2XPCT | 1358 |
| 22850 | 7590 | 03/05/2010 | | |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER WAITS, ALAN B | |
| | | | ART UNIT 3656 | PAPER NUMBER |
| | | | NOTIFICATION DATE 03/05/2010 | DELIVERY MODE ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdoCKET@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary

Application No.

10/560,131

Applicant(s)

OCHIAI ET AL.

Examiner

ALAN B. WAITS

Art Unit

3656

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-44 is/are pending in the application.
- 4a) Of the above claim(s) 34-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-33 and 39-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date 5/12/2006, 10/10/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ ~~Notice of Informal Patent Application~~
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 34-38 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11/6/2009.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 21-24, 26-28, 30-33 and 39-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law USP 7021042 in view of Klepper USP 6495002.

Law discloses a similar device comprising:

Re clm 21, 24, and 39

- an engaging portion (62, fig 3) rotatably supported by the housing (60, fig 3)
- a coating (64, fig 4) covering the engaging portion
- {the coating being deposited from a tool electrode by processing the engaging portion as a workpiece with electric spark machining} (col 1, ln 58-62)

Law does not disclose:

- The coating including one or more wear-resistant materials selected from the group consisting of Si, cubic BN, TiC, WC, SiC, Cr₃C₂, ZrO₂-Y and TiB

Klepper teaches a coating comprising:

- one or more wear-resistant materials selected from the group consisting of Si, cubic BN, TiC, WC, SiC, Cr₃C₂, ZrO₂-Y and TiB

for the purpose of providing a good coating for bearings due to high hardness and low friction (col 2, ln51-56).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Law and provide:

- one or more wear-resistant materials selected from the group consisting of Si, cubic BN, TiC, WC, SiC, Cr₃C₂, ZrO₂-Y and TiB

for the purpose of providing a good coating for bearings due to high hardness and low friction.

Re clm 22, 23, 27 and 28, Law further discloses:

- the coating includes one or more solid lubricants selected from the group consisting of hexagonal BN, MoS₂, Cr₂O₃, WS₂ and BaZrO₄ (col 1, ln 58-62; Law) (col 8, ln 31-32; Klepper)

Re clm 24, Law further discloses:

- {the electric spark machining is carried out with rotating the rotation member}

Re clm 26 and 40, Law further discloses:

- A supporting portion (64, fig 4) configured to rotatably support the rotation member (56, fig 3)

Re clm 30, 31, 41 and 42, Law further discloses:

- A gearbox (fig 2)

Re clm 32, 33, 43 and 44, Law further discloses:

- A shaft structure of variable vanes for regulating a fluid (fig 2)

The examiner notes that the limitations above denoted by the "{ }" are considered to be product-by-process limitations. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

The examiner further notes that apparatus claims 39-44, although dependent from method claims, are still considered apparatus claims. The apparatus claims 39-44 are considered to include the limitations of the method claims, however, only the structural limitations of the methods are given patentable weight since the other limitations are product-by-process claims.

4. Claims 25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law USP 7021042 in view of Klepper USP 6495002 as applied to claims 21 and 26 above, and further in view of Ueno 2004/0028303.

Law in view of Klepper disclose all the claimed subject matter as described above.

Re clm 25 and 29, Law in view of Klepper do not disclose:

- A groove configured to pool a lubrication liquid

Ueno teaches a bearing comprising:

- A groove (77, fig 4) configured to pool a lubrication liquid

for the purpose of storing grease [0033].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Law in view of Klepper and provide:

- A groove configured to pool a lubrication liquid

for the purpose of storing grease.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tanaka USP 6863994 discloses a similar device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALAN B. WAITS whose telephone number is (571)270-3664. The examiner can normally be reached on Monday through Friday 7:30 am to 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alan B Waits/
Examiner, Art Unit 3656

/Richard WL Ridley/
Supervisory Patent Examiner, Art Unit 3656